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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/700,973

11/04/2003

Vince Winstead

81044474 (202-0383)

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32997 7590 11/26/2007
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EXAMINER

LEE, CYNTHIA K

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

11/26/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/700,973

Applicant(s)

WINSTEAD, VINCE

Examiner

Cynthia Lee

Art Unit

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 September 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 7-19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____ |

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9/18/2007 has been entered.

Response to Amendment

This Office Action is responsive to the amendment filed on 9/18/2007. Claims 1-19 are pending. Claims 7-19 are withdrawn from further consideration as being drawn to a non-elected invention. Claim 1 has been amended. Applicant's arguments have been considered, but are not persuasive. Claims 1-6 are rejected for reasons stated herein below.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear as to exactly what a "charge carrier" is.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, and 5 are rejected under 35 U.S.C. 102(e) as being anticipated by Fields (US 2005/0048335).

Fields discloses a method for to control of fuel cell power output and, more particularly, to regulating the power output from a fuel cell stack in a hybrid power pack configuration of a fuel cell and an auxiliary power source [0002]. The method of operation inherent in the present invention holds the fuel cell at designed maximum power output and, thus, reduces the comparative time required to recharge the battery. Consequently, power available to the primary load is maximized and the required size of the battery for the peak load cycle is reduced [0006].

Par. [0041] Under loading conditions that equal stack 10 power output capability (applicant's claim 2), output bus 70 voltage moves to and regulates at a voltage equal to that of battery 30. There is then no net flow of current into or out of battery 30 (applicant's second value) and all system power is supplied by stack 10. (Applicant's claim 1)

Par. [0042] Under load conditions that require more power than stack 10 alone can deliver, output bus 70 voltage drops below that of battery 30, and current flows from fuel cell stack 10, through DC-DC converter 20, and also from battery 30 (Applicant's first value) to output bus 70 (the load). (Applicant's claims 1 and 5)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fields (US 2005/0048335) in view of Sugiura (US 2003/0118876) as applied to claim 1, further in view of Hochgraf (US 2003/0044658).

Fields discloses all the elements of claim 1. Fields does not disclose that a preselected range of the SOC of the battery is maintained. Hochgraf teaches that the SOC of the energy storage device is controlled. By controlling the SOC, the life of the energy storage device is extended and an adequate reserve energy margin is maintained. The reserve energy makes it possible to handle temporary high-load current conditions that are due to fluctuations [0036]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to control the SOC according to various SOC necessary to protect the battery and reserve adequate energy for unforeseen high load demand.

Claims 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fields (US 2005/0048335), as applied to claim 1, in view of Sugiura (US 2003/0118876) as evidenced by Ulmer (US 2005/0069740).

Par. [0041] Fields discloses under loading conditions that equal stack 10 power output capability, output bus 70 voltage moves to and regulates at a voltage equal to that of battery 30. There is then no net flow of current into or out of battery 30 (applicant's second value) and all system power is supplied by stack 10. (Applicant's claim 4). Thus, the power output of the battery (applicant's second value) depends on the fuel cell voltage. The Examiner notes that a fuel cell voltage is defined as $V_{fc} = \eta_{eff}/EMF$, where EMF is the open circuit voltage, $V_{fc} = \eta_{eff}/V_{ocv}$. See Ulmer par. [0035]. V_{ocv} is also maximum voltage of the fuel cell. Thus, Fields discloses that the output of the battery necessarily is based on the maximum voltage of the fuel cell.

Par. [0042] Fields discloses under load conditions that require more power than stack 10 alone can deliver, output bus 70 voltage drops below that of battery 30, and current flows from fuel cell stack 10, through DC-DC converter 20, and also from battery 30 (Applicant's first value) to output bus 70 (the load). (Applicant's claim 6)

Fields discloses that the power supply is supplemented with a battery under load condition that requires more power, but does not disclose that the battery output is based on its state of charge. Sugiura teaches that a secondary battery supplies power to a fuel cell when the SOC of the secondary battery is sufficiently large [0047]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to supply power from the battery of Fields' according to the SOC of the battery, as taught by Sugiura, to make sure that there is enough power in the battery to supply power.

Response to Arguments


Applicant's arguments filed 9/18/2007 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cynthia Lee whose telephone number is 571-272-8699. The examiner can normally be reached on Monday-Friday 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Susy Tsang-Foster can be reached on 571-272-1293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


SUSY TSANG-FOSTER
SUPERVISORY PATENT EXAMINER